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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/775,110 | 02/11/2004 | Shigeru Tago | HIRA.0143 | 3621 |

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| EXAMINER | |
|---|---|
| SKIBINSKY, ANNA | |

| ART UNIT | PAPER NUMBER |
|---|---|
| 1631 | |

DATE MAILED: 12/05/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/775,110 | TAGO ET AL. | |
| | Examiner | Art Unit | |
| | Anna Skibinsky | 1631 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *11 February 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-6* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *2/11/2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *7/14/2005*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

## Detailed Action

*RESPONSE TO APPLICANT*

1. The preliminary amendment to the claims are acknowledged. Claims currently under examination are 1-6.

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

3. Regarding the specification, there appears to be no amendments to the specification which adds SEQ ID NO:s to the disclosure. How would one relate the sequences disclosed in the sequence listing with the sequences in the figures? A suggestions is to amend the Brief Description of the Figures to recite the appropriate SEQ ID NO: for Figures 2 and 4, and to amend the disclosure to recite each SEQ ID NO: where appropriate.

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 3, 4, and 6 are rejected under 35 U.S.C. 102(b) as being anticipated by Murray et al. (U.S. Patent No. 6,876,930)

Applicant claims a method of extracting data from two databases and calculating the frequency of appearance of keywords from a key word table. A tree structure is used to organize the keywords in a table.

Murray et al. teach extracting data from literature databases such as MEDLINE, related to a certain gene (col. 2 line 63 to col. 3 line 6) using a computer and programmed algorithms. The limitations recited in claim 1 are further described in col. 26, lines 13-50, col. 27, line 58 (Fig. 10) to col. 29, as well as throughout the body of the prior art. Murray et al. teach how literature relevant to genes in a list of genes is identified, downloaded and stored (col. 26, lines 14-15). Relationships between genes are then extracted from the literature using information extraction techniques, cross referenced and graphed (col. 26, lines 16-20). The data produced and graphed is stored in a 2$^{nd}$ database referred to as the "expert database" (col. 26, lines 20-26), as in instant claim 1, lines 9-10. Here the identifier (instant claim 1, lines 7-8) is the criteria used to extract the relationship between the genes. The data from the second database may then be viewed by the user who searches to verify gene expression results.

Furthermore, finding the frequency of a biological topic described in abstracts is taught. These published references are then scored based on the times they are referenced in other journals (col. 17, lines 34-47, col. 18, lines 1-4, and Table 1). The prior art teaches the limitations of claim 1, lines 11-14. Here keywords can be the journal titles stored in a database along with the abstracts and articles.

As recited in claim 3, Murray et al. teach extracting data for a plurality of gene sequences (e.g. col. 3, lines 4-6 and col. 6, lines 41-46) throughout the specification and do not limit query strategies to one sequence at a time.

As in recited in claims 4 and 6, a database environment is described (col. 7, line 10 to col. 10, line 9) by Murray et al. where the above described method is carried out with a computer.

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 2 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Murray et al (U.S. Patent No. 6,876,930) as applied to claims 1, 3, 4, and 6 above in combination with Getchius (U.S. Patent No. 6,519,592)

Murray et al. teach extracting data from literature databases such as MEDLINE, related to a certain gene (col. 2 line 63 to col. 3 line 6) using a computer and programmed algorithms. The limitations recited in claim 1 are further described in col. 26, lines 13-50, col. 27, line 58 (Fig. 10) to col. 29, as well as throughout the body of the prior art. Murray et al. teach how literature relevant to genes in a list of genes is identified, downloaded and stored (col. 26, lines 14-15). Relationships between genes are then extracted from the literature using information extraction techniques, cross referenced and graphed (col. 26, lines 16-20). The data produced and graphed is stored in a 2$^{nd}$ database referred to as the "expert database" (col. 26, lines 20-26), as in instant claim 1, lines 9-10. Here the identifier (instant claim 1, lines 7-8) is the criteria used to extract the relationship between the genes. The data from the second database may then be viewed by the user who searches to verify gene expression results.

Furthermore, finding the frequency of a biological topic described in abstracts is taught. These published references are then scored based on the times they are referenced in other journals (col. 17, lines 34-47, col. 18, lines 1-4, and Table 1). The prior art teaches the limitations of claim 1, lines 11-14. Here keywords can be the journal titles stored in a database along with the abstracts and articles.

Murray et al. also teach "tagging" particular nouns and verbs related to a particular gene (col. 28, lines 24-26) and using decision trees to extract information from text (col. 29, lines 39-45), as in claim 2 which uses a tree structure to organize keywords in categories. However, Murray et al. does not teach the use of tree structures.

As recited in claim 3, Murray et al. teach extracting data for a plurality of gene sequences (e.g. col. 3, lines 4-6 and col. 6, lines 41-46) throughout the specification and do not limit query strategies to one sequence at a time.

As in recited in claims 4, 5, and 6, a database environment is described (col. 7, line 10 to col. 10, line 9) by Murray et al. where the above described method is carried out with a computer. However, Murray et al. does not teach the use of tree structures in the database environment as recited in claim 5.

Murray et al. do not directly teach a keyword table with a tree structure as recited in claims 2 and 5. However, tree structures have long been known the computational arts as effective ways to arrange data, especially for queries. Getchius et al. teaches the use of a tree structure for tabulating computational data (col. 21, lines 5-6 and col. 33, lines 17-26). To build the table, the frequency of entries for each category is counted (col. 20, lines 38-44), thus the frequency of each key word that makes up a category is known.

It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to have implemented tree structures as a commonly used form of programmable data structure in the database structures of Murray. One of skill

in the art would have been motivated to use tree structures, as they are considered to be an effective way for arranging data that will need to be retrieved. for example, in a query. One of skill in the art would have had the further motivation to implement the tree structures of Getchius in the methods and structures of Murray et al. as it allows for faster and more efficient access to information than data that is arranged in a linear table or list. One of skill in the art would have had a reasonable expectation of success at utilizing tree structures in the methods and structures of Murray, as they were well known in the art and do not require any special programming or hardware. Therefore, the invention as a whole would have been prima facie obvious, absent evidence to the contrary.

### *Claim Rejections - 35 USC § 101*

2. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1-6 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The instant claims do not recite a physical action or a physical manipulation of a physical object. It is insufficient to recite "A program for causing a computer to carry out ..." (as in claim 4) because computation within a computer is not considered statutory subject matter. To overcome this rejection, claims may recite the display of data on a computer screen or the physical

entering of data. Written basis as filed is required for any such amendment to the claims of that type.

## Objections

3. The disclosure is objected to because of the following informalities:

It contains an embedded hyperlink and/or other form of browser-executable code on page 1 of the specification. Applicant is required to delete the embedded hyperlink and/or other form of browser-executable code. See MPEP § 608.01. Appropriate correction is required.

## Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anna Skibinsky whose telephone number is (571) 272-4373. The examiner can normally be reached on 8 am - 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ardin Marschel can be reached on (571) 272-0718. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MARY K. ZEMAN
PRIMARY EXAMINER
AU 1631
4/28/05